

Amendments to the Claims:

Please rewrite the pending claims and enter new claims as follows:

1. (currently amended) A method for aggregating network file protocol transactions in a network system, the method comprising the steps of:

receiving a first frame of a first message belonging to a first transaction, the first frame containing a first file protocol header and a first data, the first transaction initiated by a first client computer;

based on information in the first file protocol header, selecting a first set of file servers to participate in handling the first transaction;

sending a second frame to a first server from the first set of file servers, the second frame containing a second file protocol header and a portion of the first data, the second file protocol header being derived from the first file protocol header, the second file protocol header being consistent with a predefined network file protocol.

2. (original) The method in claim 1 further comprising the steps of:

receiving a third frame from said first server, the third frame containing a third file protocol header;

sending a fourth frame to the first client computer, the fourth frame containing a fourth file protocol header, the fourth file protocol header being derived from the third file protocol header.

3. (original) The method in claim 1 further comprising the step of sending a third frame to a second server from the first set of file servers, the third frame containing a third file protocol header and a portion of the first data, the third file protocol header being derived from the first file protocol header.

4. (original) The method in claim 3 further comprising the steps of:

receiving a fourth frame from said first server, the fourth frame containing a fourth file protocol header;

receiving a fifth frame from said second server, the fifth frame containing a fifth file protocol header;

creating a response file protocol header, derived from the fourth file protocol header and from the fifth file protocol header;

sending a sixth frame to the first client computer, the sixth frame containing the response file protocol header.

5. (currently amended) ~~A method for aggregating network file protocol transactions in a network system, the method comprising the steps of:~~

~~receiving a first frame of a first message belonging to a first transaction, the first frame containing a first file protocol header and a first data, the first transaction initiated by a first client computer;~~

~~based on information in the first file protocol header, selecting a first set of file servers to participate in handling the first transaction;~~

~~sending a second frame to a first server from the first set of file servers, the second frame containing a second file protocol header and a portion of the first data, the second file protocol header being derived from the first file protocol header;~~

The method of claim 1, further including:

receiving a third frame of the first message, the third frame containing a second data;

sending a fourth frame to a second server from the first set of file servers, the fourth frame containing a third file protocol header and a portion of the second data.

6. (original) The method of claim 5 further comprising the steps of:

receiving a fifth frame from said first server, the fifth frame containing a fourth file protocol header;

receiving a sixth frame from said second server, the sixth frame containing a fifth file protocol header;

sending a seventh frame to the first client computer, the seventh frame containing a sixth file protocol header, the sixth file protocol header being derived from the fourth file protocol header and from the fifth file protocol header.

7. (original) The method of claim 5 further comprising the steps of:

sending a fifth frame to a third server from the first set of file servers, the fifth frame containing a modified first file protocol header and a portion of the first data,

sending a sixth frame to a fourth server from the first set of file servers, the sixth frame containing a file protocol header and a portion of the second data.

8. (currently amended) A method for aggregating network file protocol transactions in a network system, the method comprising the steps of:

receiving a first frame belonging to a first transaction, the first frame containing a first file protocol header, the first transaction initiated by a first client computer;

based on information in the first file protocol header, selecting a first set of file servers to participate in handling the first transaction;

sending a second frame to a first server from the first set of file servers, the second frame containing a second file protocol header comprising a first modified version of the first file protocol header;

sending a third frame to a second server from the first set of file servers, the second frame containing a third file protocol header comprising a second modified version of the first file protocol header.

9-18. (canceled)

19. (currently amended) A switched file system for handling networked file data, the system comprising:

a plurality of client computers utilizing a first network file protocol;

a plurality of server computers utilizing a second network file protocol;

at least one file switch, the file switch ~~being capable of switching file messages from between a respective client computer to~~ and at least a subset of the plurality of server computers.

20-33. (canceled)

34. (new) A method of operating a file switch in a storage network, comprising:

exchanging first file transaction messages with a plurality of client computers, including operating as a file server with respect to the plurality of client computers;

exchanging second file transaction messages with a plurality of file servers, including operating as a client computer with respect to the plurality of file servers; wherein respective subsets of the second file transaction messages correspond to respective subsets of the first file transaction messages; and

arbitrating between multiple file transaction requests from the plurality of client computers.

35. (new) A method for aggregating file systems, comprising:

coupling a group of client computers to a group of file servers through a file switch in a computer network;

aggregating directories of multiple file systems in the group of file servers by presenting them as a single directory; and

aggregating file objects of the multiple file systems in the group of file servers by presenting them as a single file object.

36. (new) The method of claim 35, further including aggregating the namespace of the multiple file systems by:

storing a set of name-mapping rules in the file switch;

receiving a file access transaction from a client, the file access transaction including a user file name and a user path name to a file in the group of file servers;

applying the set of name-mapping rules to the user path name to generate a server path name; and

executing the file access transaction in accordance with the server path name.

37. (new) The method of claim 36, wherein the name-mapping rules comprise:

a list of predefined user path names; and

a corresponding list of mapped server path names.

38. (new) The method of claim 36, wherein the step of applying comprises:

comparing the user path name to the list of predefined user path names; and

if the user path name matches one of the predefined user path names, replacing the user path name with the corresponding mapped server path name from the list of mapped server path names.

39. (new) The method of claim 35, wherein the step of aggregating directories comprising:

receiving a file create request from a client, the file create request including a user file name and a user file path;

selecting a set of file servers among the group of file servers for storing the user file;

determining a file path for each selected file server;

storing, in the file switch, information identifying the set of file servers and the file paths corresponding to the user file; and

updating the directories on the set of file servers to indicate storage of the user file.

40. (new) The method of claim 39, further comprising:
- receiving a file access request from the client, the file access request including the user file name;
 - mapping the file access request with respect to the user file name into at least one file request directed to at least one file server in the set of file servers, the mapping including reading the information identifying the set of file servers and the file paths corresponding to the user file; and
 - executing the file access request in accordance with the set of file servers and the file paths corresponding to the user file.
41. (new) The method of claim 39, wherein the step of determining includes mapping the user file path into a corresponding server file path in the set of file servers in accordance with a predetermined set of mapping rules.
42. (new) The method of claim 35, wherein the step of aggregating file objects comprises:
- receiving a file object update request from a client, the file object update request includes a user file name and a user file path of a user file;
 - selecting a set of file servers among the group of file servers in accordance with the user file name and the user file path;
 - determining a file path to access file objects corresponding to the user file for each file server in the set of file servers;
 - storing, in the file switch, information identifying the set of file servers and the file paths corresponding to the user file; and
 - updating the file objects corresponding to the user file in the selected set of file servers.
43. (new) The method of claim 42, wherein the step of aggregating file objects further comprises:
- receiving a file object read request from a client, the file object read request includes the user file name and user file path;
 - mapping the file object read request into at least one file request directed to at least one file server in the set of file servers, the mapping including reading the information identifying the set of file servers and the file paths corresponding to the user file;
 - retrieving file objects corresponding to the user file from at least one file server in the set of file servers; and

sending the file objects retrieved to the client.

44. (new) The method of claim 42, wherein the file objects include at least two file objects selected from the set consisting of creation dates, last modification dates, file sizes, disk usage values, access control lists, security descriptors, and archive indicators.

45. (new) A file switch for use in a computer network having a group of file servers and a plurality of client computers, the file switch comprising:

at least one processing unit configured to execute computer programs;

at least one port adapted to exchange information with the file servers and client computers, the information exchanged including information concerning a specified file data; and

an aggregation module including one or more computer programs, the computer programs including instructions for:

aggregating directories of multiple file systems in the group of file servers by presenting them as a single directory; and

aggregating file objects of the multiple file systems in the group of file servers by presenting them as a single file object.

46. (new) The file switch of claim 45, further including instructions for aggregating the namespace of the multiple file systems, the namespace aggregating instructions comprising instructions for:

storing a set of name-mapping rules in the file switch;

receiving a file access transaction from a client, the file access transaction including a user file name and a user path name to a file in the group of file servers;

applying the set of name-mapping rules to the user path name to generate a server path name; and

executing the file access transaction in accordance with the server path name.

47. (new) The file switch of claim 46, wherein the name-mapping rules comprise:

a list of predefined user path names; and

a corresponding list of mapped server path names.

48. (new) The file switch of claim 46, wherein the instructions for applying comprise instructions for:

comparing the user path name to the list of predefined user path names; and
if the user path name matches one of the predefined user path names, replacing the user path name with the corresponding mapped server path name from the list of mapped server path names.

49. (new) The file switch of claim 45, wherein the instructions for aggregating directories comprise instructions for:

receiving a file create request from a client, the file create request including a user file name and a user file path;

selecting a set of file servers among the group of file servers for storing the user file;

determining a file path for each selected file server;

storing, in the file switch, information identifying the set of file servers and the file paths corresponding to the user file; and

updating the directory structure on the set of file servers to indicate storage of the user file.

50. (new) The file switch of claim 49, further comprising instructions for:

receiving a file access request from the client, the file access request including the user file name;

mapping the file access request with respect to the user file name into at least one file request directed to at least one file server in the set of file servers, the mapping including reading the information identifying the set of file servers and the file paths corresponding to the user file; and

executing the file access request in accordance with the set of file servers and the file paths corresponding to the user file.

51. (new) The file switch of claim 49, wherein the instructions for determining include instructions for mapping the user file path into a corresponding server file path in the set of file servers in accordance with a predetermined set of mapping rules.

52. (new) The file switch of claim 45, wherein the instructions for aggregating file objects comprise instructions for:

receiving a file object update request from a client, the file object update request includes a user file name and a user file path of a user file;

selecting a set of file servers among the group of file servers in accordance with the user file name and the user file path;

determining a file path to access file objects corresponding to the user file for each file server in the set of file servers;

storing, in the file switch, information identifying the set of file servers and the file paths corresponding to the user file; and

updating the file objects corresponding to the user file in the selected set of file servers.

53. (new) The file switch of claim 52, wherein the instructions for aggregating file objects further comprise instructions for:

receiving a file object read request from a client, the file object read request includes the user file name and user file path;

mapping the file object read request into at least one file request directed to at least one file server in the set of file servers, the mapping including reading the information identifying the set of file servers and the file paths corresponding to the user file;

retrieving file objects corresponding to the user file from at least one file server in the set of file servers; and

sending the file objects retrieved to the client.

54. (new) The file switch of claim 52, wherein the file objects include at least two file objects selected from the set consisting of creation dates, last modification dates, file sizes, disk usage values, access control lists, security descriptors, and archive indicators.